Understanding the Source of Enterprise Fuels Data used in Fire Program Analysis FLS_010_WP

Topic:

Understanding the source of enterprise fuels data used in the Fire Program Analysis (FPA).

Purpose

This paper discusses the source of enterprise fuels data used in FPA.

Background

FPA needs a fuels landscape to support modeling in the Initial Response Simulator (IRS) and Large Fire Module (LFM). FPA uses enterprise data sources for this fuels landscape to ensure data consistency. Use of inconsistent data would result in FPA simulation results that could not be analyzed from a national perspective. LANDFIRE provides the necessary fuels data to support FPA, however, LANDFIRE data are not currently available for all Fire Planning Units (FPUs). Until LANDFIRE has fuel data coverage for all FPUs (http://www.landfire.gov/schedule_table.php), FPA will use the following three sources of fuels data for initial response and large fire simulations:

- FPA will use LANDFIRE data layers where they are available.
- Where LANDFIRE data layer are not available, FPA will use the Southern Wildfire Risk Assessment (SWRA) layers, where they are available.
- Where LANDFIRE and SWRA data layers are not available, FPA will use fuels data layers developed by FPA. FPA fuel layers will be available in early April 2008.

FPUs are urged to continue working with the LANDFIRE Project through active participation in calibration workshops to ensure that the fuel models resulting from the LANDFIRE modeling are appropriate for strategic uses for analytical tools such as FPA.

Considerations

The LANDFIRE Project is currently preparing updates to its vegetation and wildland fuel products for map zones with existing LANDFIRE coverage. This is an interim update process and will provide improved data until LANDFIRE enters its Biennial Maintenance Cycle in 2010. The update process has two distinct sequential phases:

- Rapid Refresh, and
- Refresh.

All Rapid Refresh and Refresh process descriptions and delivery dates are provided courtesy of the LANDFIRE Project. They are subject to update as the processing is completed over the next several months.

Discussion

Rapid Refresh

The Rapid Refresh process incorporates wildland fire disturbances that occurred between 1999 and 2007 with updated fuel model data being delivered in June 2008. Rapid Refresh will include available data from sources such as the Monitoring Trends in Burn Severity (MTBS) Project that currently includes fire disturbances of at least 1,000 acres in the Western U.S. and 500 acres in the Eastern U.S. This process will update the following fire behavior layers:

- 13 Anderson (1982) Fire Behavior Fuel Models (FBFM)
- 40 Scott and Burgan (2005) Fire Behavior Fuel Models (FBFM)
- Forest Canopy Bulk Density (CBD)
- Forest Canopy Base Height (CBH)
- Forest Canopy Cover (CC)
- Forest Vegetation (stand) Height (VH)

Due to the short amount of time allocated to the LANDFIRE Rapid Refresh process, FPUs will not be asked to provide input or to edit Rapid Refresh layers that are developed. However, LANDFIRE is administering a subject matter expert (SME) review at the Geographic Area level.

Refresh

The focus of the LANDFIRE Refresh process is to identify areas that have experienced landscape changes due to disturbance or land management activities since the initial suite of LANDFIRE products were completed. The Refresh process will update fire behavior layers listed above and:

- Vegetation Layers
    - Existing Vegetation,
    - Existing Vegetation Height, and
    - Existing Vegetation Cover.
- Fire Regime
    - Succession Class.
- Fire Effects (may include these layers)
    - Fuel Loading Models, or
    - Fuel Characteristics Classification System (FCCS).

Future Directions

The LANDFIRE Project will publish a technical paper that further discusses the Refresh process. FPA will notify the field when this paper is available. Additional information on all LANDFIRE update strategies will be available at http://www.landfire.gov

LANDFIRE Update Strategy

FPA will use the most current LANDFIRE data available to support FPU's analyses. Data FPA will use to input into the analysis may be LANDFIRE, Rapid Refresh LANDFIRE, or Refresh LANDFIRE depending on the which is the most current version available.

Rapid Refresh

- Process runs from January 2008 thru June 2008.
- Updated LANDFIRE data will be incorporated into a new base map for Refreshed areas. These products will be maintained as separate layers. FPA will use the Rapid Refresh data for 2008, along with the SWRA and FPA fuels layers described above.

Refresh - LANDFIRE Future Fuel-Layer Enhancement

- Process to run from spring 2008 thru spring 2010.
- LANDFIRE will provide direction and support to local level efforts to make updates.

Biennial Updates

- The Biennial Update strategy is intended to be operational in 2010.
- Biennial updates will be informed or incorporate Rapid Refresh and Refresh data into the corporate layers.
- Update LANDFIRE corporate layers every two years.
- Capture major detectable landscape disturbances (wildland fires, storm damage, insect, and disease).
- First Biennial data products available nationally in 2011.
- Continued Biennial Updates throughout the Operations and Maintenance (O&M) period (2025).

Decadal Update

- Comprehensive remap of all U.S. lands from 2017 – 2025.
- Remapping to capture gradual, cumulative, broad-scale changes (drought, invasive species, vegetation succession, loss of open space) as well as disturbance change agents.